23rd National Convention of Aerospace Engineers

Bangalore, Karnataka

26 - 27 November 2009

Infrastructure Development for Growth of Civil Invitation and Aerospace Technology in India

under the aegis of

Aerospace Engineerring Division Board
The Institution of Engineers (India)

Organised by

Platinum Jubilee year of

The Institution of Engineers (India)

Karnataka State Centre, Bangalore

Co-Sponsors

AERONAUTICAL SOCIETY OF INDIA

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Setting a Strategic Direction for Karnataka to become Centre for Civil Aircraft Development: A Review of Historical Perspective, Present Expertise and Some Thoughts for Future

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The Civil Aviation Industry includes all those organisations engaged in Research, Development, Manufacture and Overhaul of aircraft systems, propulsion, guidance and control units, and a variety of ground based equipments essential for the testing, operations, documentation and maintenance of aircraft. Technological capabilities influence National Security, Foreign Policy, Aviation programmes, and other national goals of any country. In addition to this, the efficacy of Air Transportation System depends to a considerable degree on the quality and performance of equipments produced for the airlines and the airport operators. Naturally, such an Industry is vital for the economic development, considering its effects on trade, employment, R&D, and other industries associated with it. Aviation Industry conducts more research than any other industry. R&D is a major long-term determinant of national economic growth. Many new aviation related products and processes have spun off from initial requirements and have provided values to other industries. Moreover, aviation industry is also a large scale user of other industries' goods and services. The study results reveal that for every 100 aviation jobs created, another 73 are created in other industries. Another hypothesis is that employment opportunities in the Civil Aviation sector with an efficiency ratio of 1:100 show that there are multiplier benefits from the aviation services. Each of these effects represent a significant contribution to State's and Nation's economy and together with these factors will put role of aviation to a key position among the major industries.

This paper discusses how the various Organizations located in Bangalore (Karnataka) have shaped the Aviation Industry in India and some thoughts are presented to make it as an Aviation hub in the development of Civil Aircraft in the country. This paper also elaborates the present perspective related to R&D in Civil Aircraft development in Karnataka and the future prospects for air transport industry and its associated multiplier effects. The world experience indicates that the state support and funding has played a vital role in the initiation of civil aircraft development programmes worldwide, for example Boeing, Airbus, Embraer, Bombardier etc. With these in view, Government of India has set up a separate air transport division at HAL Kanpur in 1960's to meet the demand of both IAF and domestic air transport needs and also a centre for Civil Aircraft Design and Development in Bangalore and entrusted the mandate of Civil Aircraft development to National Aerospace Laboratories (NAL), a constituent of CSIR under Ministry of Science and Technology. To ascertain the demand potential for feeder air services in Karnataka and the adjoining affinity cities, a market survey has been commissioned by NAL and the report is published in 1998-2000. During 2005-2008, a review study was undertaken at NAL to update the transport demand estimations for feeder airline services in India. A sensitivity analysis was carried out for various levels of traffic growth keeping in view the sharp increase of air travel during 2003-08 and further growth in air traffic fuelled by feeder sector as the hinterland opens up industry, services and tourism. The suitable aircraft size, estimated cumulative aircraft fleet requirement upto the year 2020 and the potential cities identified for air connectivity in Karnataka based on these studies are discussed in this paper. What appears to have not been tapped is the equally large potential in the short haul sectors, which serve major and small city pairs and also act as feeders to the major hubs. It is an opportunity for Karnataka to take initiative in the form of opening up its un-utilized airports for commencement of flight operations by considering the tremendous potential for passenger traffic (industrial, service, tourism/ leisure travel etc.) and cargo (perishable, non-perishable, agro-processed products etc.). The Government's decision to modernise 32 non-metro airports and renovate 125 un-utilized regional airports, as well as introducing new production of smaller capacity aircraft will open avenues for aviation industry. In this paper, an attempt is also made to review the historical and present perspectives associated

with the learning process of Civil Aircraft development in the country with special emphasis on the role played by R&D and production centres located in Bangalore (Karnataka) in enhancing technological efforts.

The paper further highlights the positive effects of Civil Aviation including more employment generation, development of service and tourism sectors leading to the socio and economic development of Karnataka. The studies show that there is a direct impact of Aviation Industry on the economy and its gross domestic product (GDP). In reciprocal, the economic growth has a tremendous effect on the Civil Aviation market. The correlation between economic growth and air travel has been recognized by analysts for many years. A generally accepted thumb rule that holds this hypothesis is that there is a 2.5 to 3.0 per cent increase in air traffic for every 1 per cent increase in economic growth (in terms of GDP). Bangalore is uniquely positioned to use cutting edge technology for design, development and manufacture of civil aircraft which can create a vibrant air transport industry in the country thus contributing to our progress as a nation. What is needed is an environment where Government, Academic institutions, Companies, Venture Capitalists, and other Entrepreneurs come together for the enablement of science and technology eco-system for the sustainability of Indian Aviation. In these endeavours, the mission for Karnataka could be to provide logistics support for R&D leading to a scientific and industrial base that maximizes the economic, environmental and societal benefits for the people. To make this vision come true for the future of the Aviation Industry; driving forces, some strategic thoughts and also career opportunities in Aviation Industry are highlighted in this paper. It is expected that this paper can complement the research and academic efforts in that direction.